

User-tailored Inter-Widget Communication

The logo for the Wookiee Engine, featuring the word "Wookiee" in a blue, stylized font with a white outline, set against a white background with an orange border. The background of the slide is a close-up of Chewbacca's face and arms, with his arms raised in a celebratory gesture.

Wookiee

Extending the Shared Data Interface for the Apache Wookie Engine

Bernhard Hoisl, Vienna University of Economics and Business
Hendrik Drachsler, Open University of the Netherlands
Christoph Waglechner, Vienna University of Economics and Business





Language **T**echnologies **f**or **L**ifelong **L**earning





CREATES A SET OF TOOLS

Addressing two areas of TEL:

- help people to learn
- help tutors/teachers support learners





THREE THEMES

- Positioning the learner
- Feedback Support
- Knowledge retrieval and sharing



Tutor/Learner support not fully automated system



INNOVATIVE NEW DESIGN

Create next-generation support and advice services for individual and collaborative learning using language technologies (LSA, NLP, etc)



PERSONALISED SERVICES

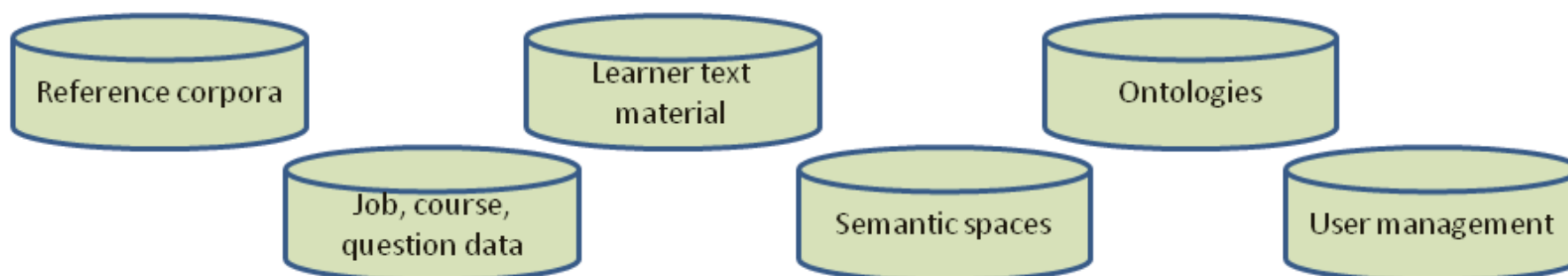
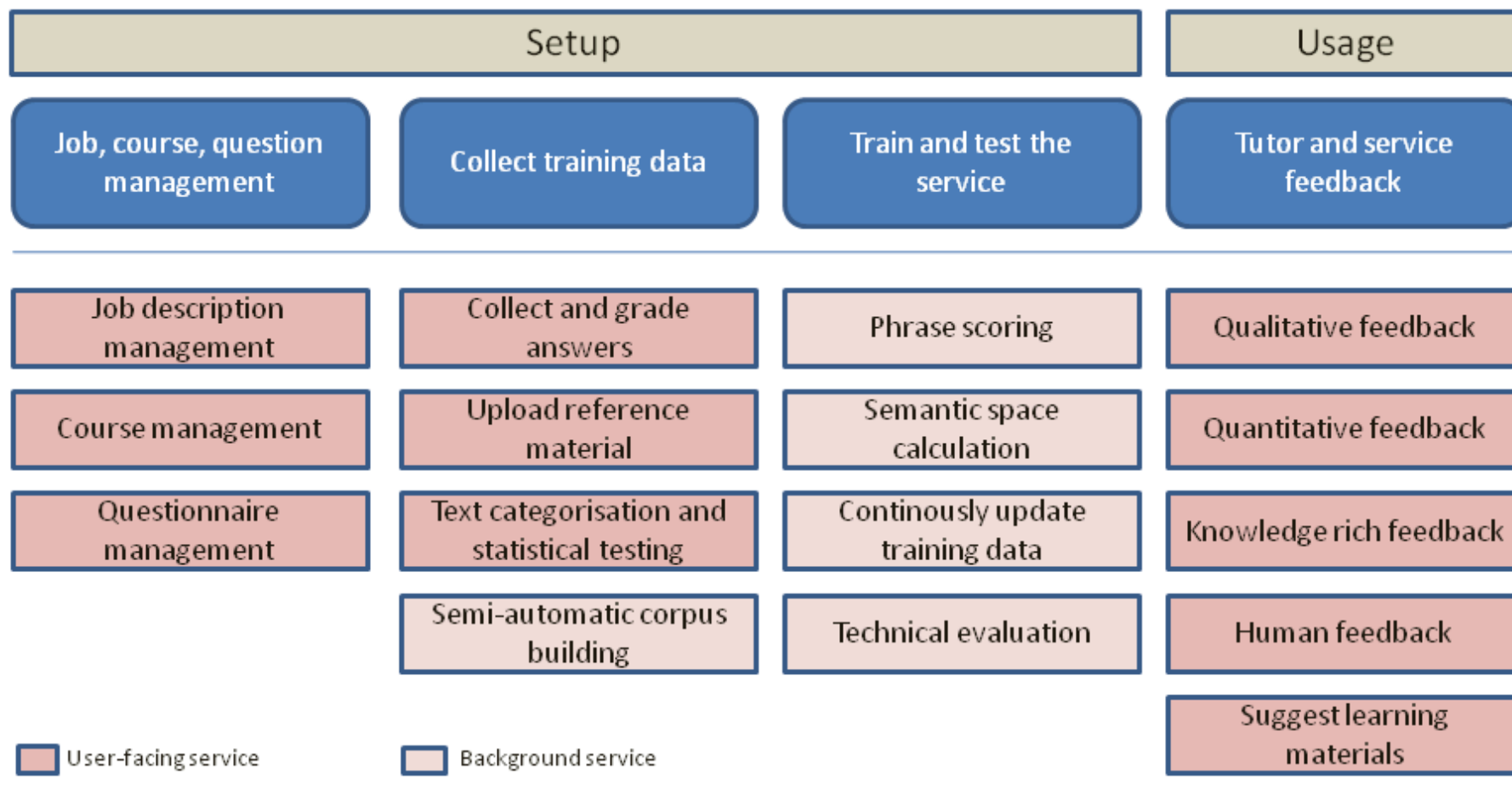
Individual feedback and support





And how we do that ...

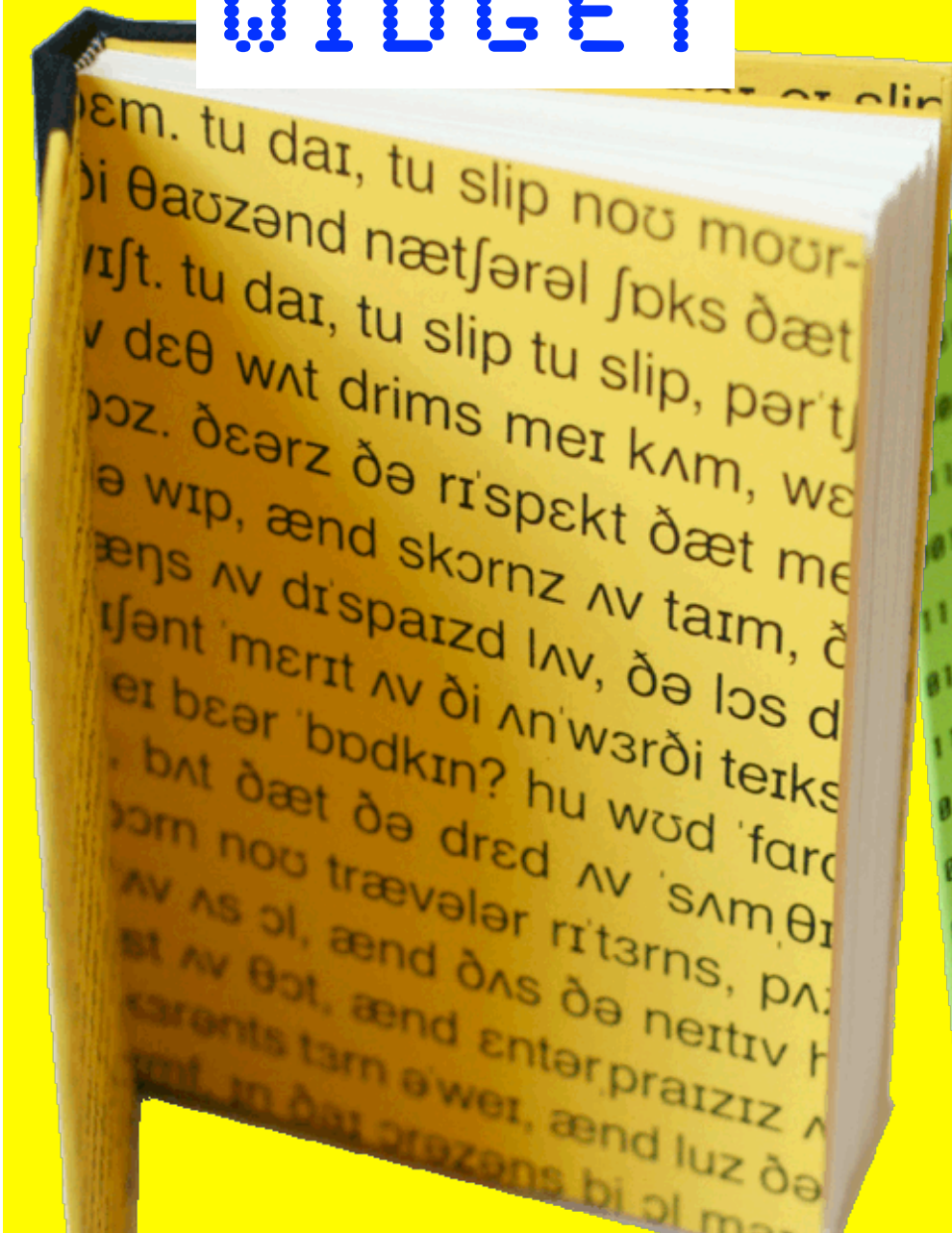




WHAT IS A ...

WIDGET

Wookie



WHAT IS A ...

WIDGET

- Aka: gadgets, apps, minis, badges, flakes, desklets ...
- Use common technology HTML, CSS, JavaScript, AJAX
- Application stores (e.g. Apple, Google, ...)

Widgets are rich, interactive mini-applications that bring functionality to website and personal environments.

Wookie



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Wookie

- Open source widget engine
- Incubator phase at the Apache Foundation
- created by EU project TENCompetence

Wookie manages widgets to embedded them into a wide range of web applications (e.g. Wordpress, Elgg, Moodle)

PERSONAL ENVIRONMENTS



PERSONAL ENVIRONMENTS

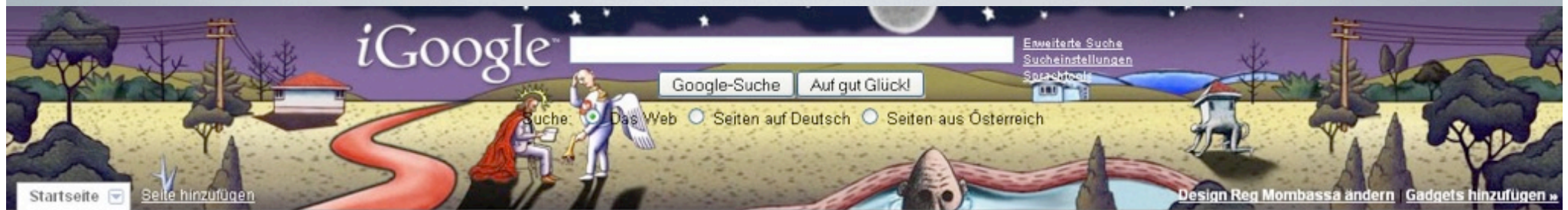


PERSONAL ENVIRONMENTS

Most-popular Web 2.0 Tools and Applications



PERSONAL ENVIRONMENTS



Wetter

Heerlen
16°C
Aktuell: Klar
Wind: SW mit 8 km/h
Feuchtigkeit: 72 %

Mi.	Do.	Fr.	Sa.
20° 11°	19° 6°	17° 6°	20° 7°

Mein del.icio.us

Mein del.icio.us | Bearbeiten

del.icio.us / drachs / network
Bookmarks from drachs's network

Hotliste | **Lesezeichen** | **Netzwerk**

- About us | mobile.messaging.solutions by **phish108** on 2009-09-22
- Mobile Social Community by **phish108** on 2009-09-22
- The Ultimate Puzzle Site - Logical by **danzinde** on 2009-09-22
- EARLI - Conference Announcements by **danzinde** on 2009-09-22
- 5th EARLI SIG 14 Conference - Ludwig by **danzinde** on 2009-09-22
- yt by **klamma** on 2009-09-22
- Wissenschaftskommunikation.info by **klamma** on 2009-09-22

[more»](#)

+ Add Gadget To Your Toolbar

Google Reader (424)

All items (424) [refresh](#) [mark all as read](#)

- ★ [Links for 2009 09 22](#)
from [Paolo blog: Ramblings on Web2.0, Trust, Reputation.](#)
- ★ [Wint de pen het van de computer?](#)
from [Wilfred Rubens: technology enhanced learning](#)
- ★ [Gaming in het onderwijs moet ook leiden tot beter leren](#)
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Digg

All Topics

All | **News** | Videos | Images | Friends | Settings

- 145 [Snapture Goes Legit Finally... Now Its In Apple's App Store](#)
5 Comments
- 100 [10 Amazing Modern Watch Designs of the Future](#)
9 Comments
- 103 [Autumnal Equinox 2009: Facts on the First Day of Fall](#)
7 Comments
- 154 [Planet's Violent Epicenter - A Sweeping Arc of 160 Volcano](#)
4 Comments

ProgrammableWeb

- ESRI's New Web Mapping APIs Site Is Full of Goodies
- 28 APIs Used in 7 Days: Twitter, Bing Maps, Salesforce, Facebook, the Guardian, and Google Earth
- Why Aren't There More Transit APIs?

Mashable!

- Deadbeats, Freaks, and Creeps: Your Dating Days Are Numbered
- Google's Plan to Kill Internet Explorer? Google Wave
- INVISIBLE: New Technology Turns TV Screens into Speakers

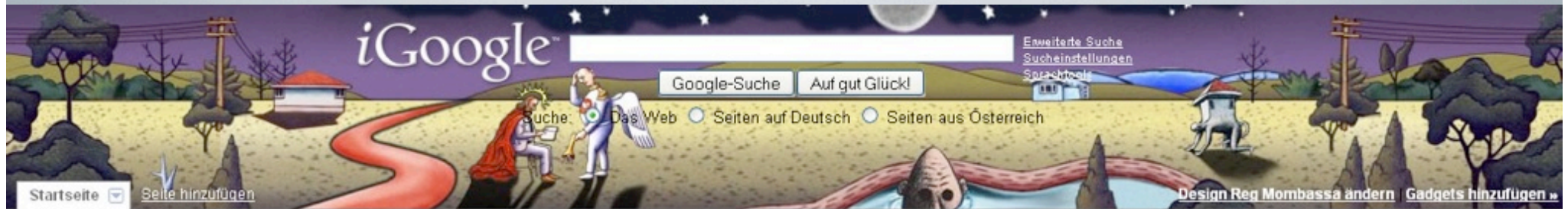
ReadWriteWeb

- Gelato: The FriendFeed of Dating
- Micello: Google Maps for the Indoors
- Explaining the Real-Time Web in 100 Words or Less

SPIEGEL ONLINE - Schlagzeilen

- Rechtsextremer Hass-Wahlkampf: Ermittler durchsuchen NPD-Zentrale wegen Drohbrieffen
- Gipfel in New York: US-Regierung verirrt sich im Nahost-Labyrinth
- Flugreisen: Lufthansa rechnet mit Lockerung des Flüssigkeitsverbots

PERSONAL ENVIRONMENTS



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Mein delicious

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Bookmarking

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More
Information
Providers

- SR's New Web Making Full of Goodies
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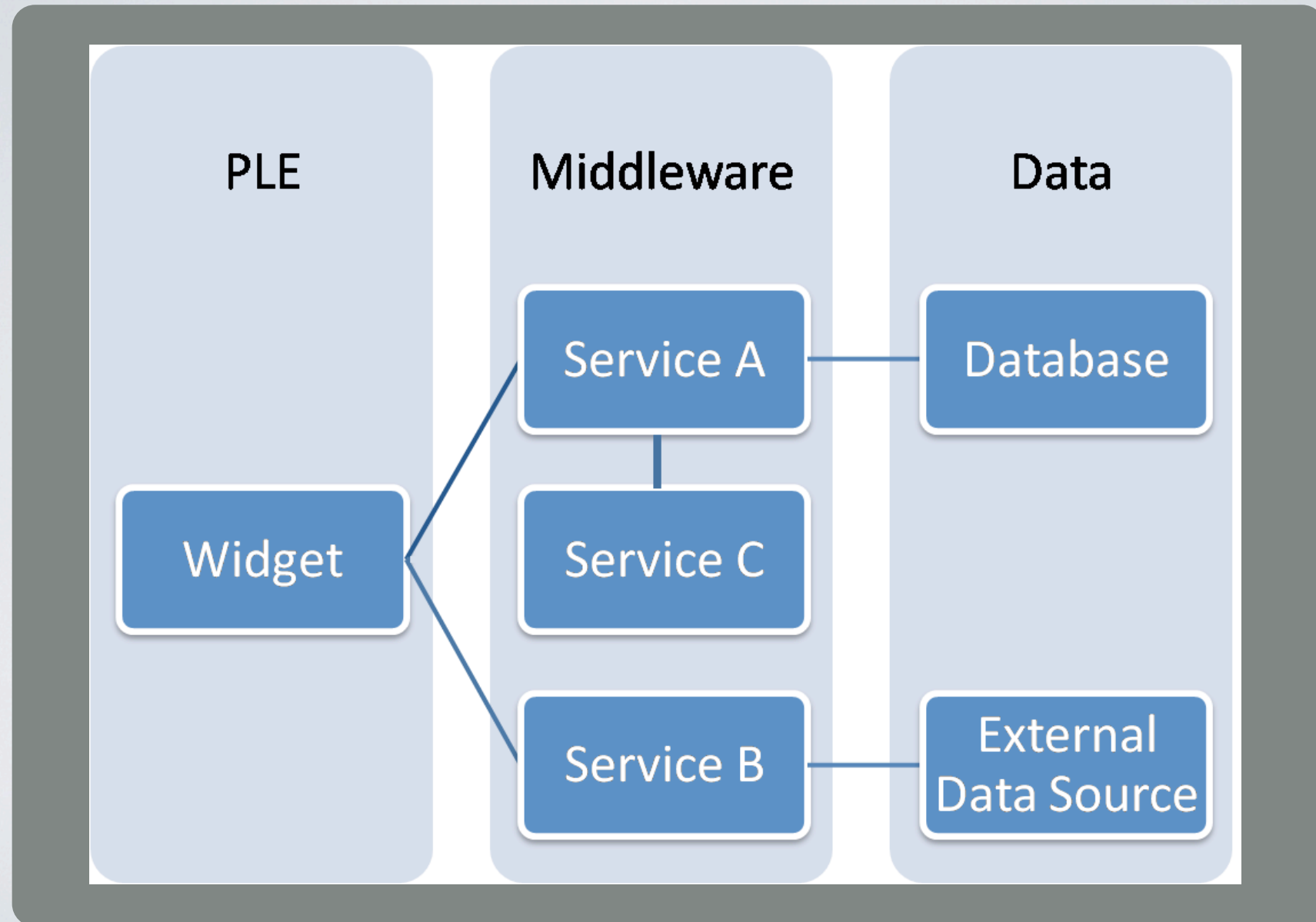
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THE CONCEPT



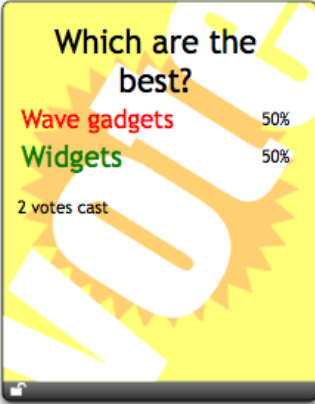
IN PRACTICE

wookiemoodle ▶ WMG

Course: Wookie Moodle Google

Switch role to... Turn editing on

You decide



Which are the best?

Wave gadgets 50%

Widgets 50%

2 votes cast

Topic outline

How A Moodle Can Be Like A Wave


This Moodle course is acting as a *Wave Container* (i.e. a context) for connecting to a Wookie Widget Engine.


A *Moodle Block Plugin* (a small php file used to configure bits of the course) tells Wookie to pass it a Widget, and sends it the current user (the *Viewer*).

Wookie renders the *Wave Widget* requested by the *Moodle block*; each *Widget* calls the *Wave API* (e.g. `wave.getParticipants`, `wave.getState...`) which is implemented as a JS wrapper that Wookie injects at runtime, and communicates with Wookie's own Comet and AJAX services to update the *Widget's* state in real time.

Unlike a regular Moodle course page, everything you see here updates live in real time - you never need to refresh the page.

1

 new course

 asdfafd

Wave Test: Sudoku

7		8	6		2	9
9	8		3	2		7
1	2			9	6	
6	9	2	7			5
	1		9	5	4	
2	7		3	6	8	1
		6	1			9
5	9		4	2		7
4	8		6		5	

Updates:

chewbacca +1

chewbacca -1

scott -1

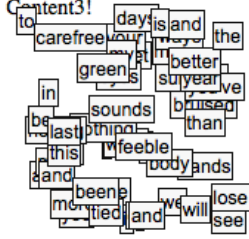
Ranking:

1. chewbacca (0)

2. scott (-1)

Wave Test: Poetry

Content3!



Done

Open Notebook

RELATED WORK

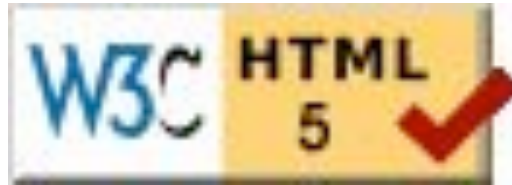


- Gadget-to-Gadget communication framework
- Static specification of communication widgets in the widget manifest file
- Not dynamic extensible to new widgets that also need to receive updates

RELATED WORK



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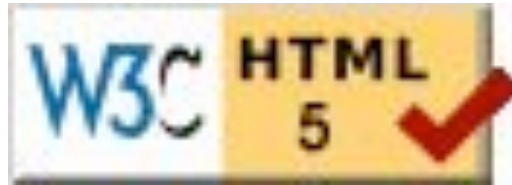


- In the working draft an API for cross-document messaging is defined.
- More generally described and not tailored specifically to IWC
- HTML5 is still no web-browser standard and not reliable at the moment.

RELATED WORK



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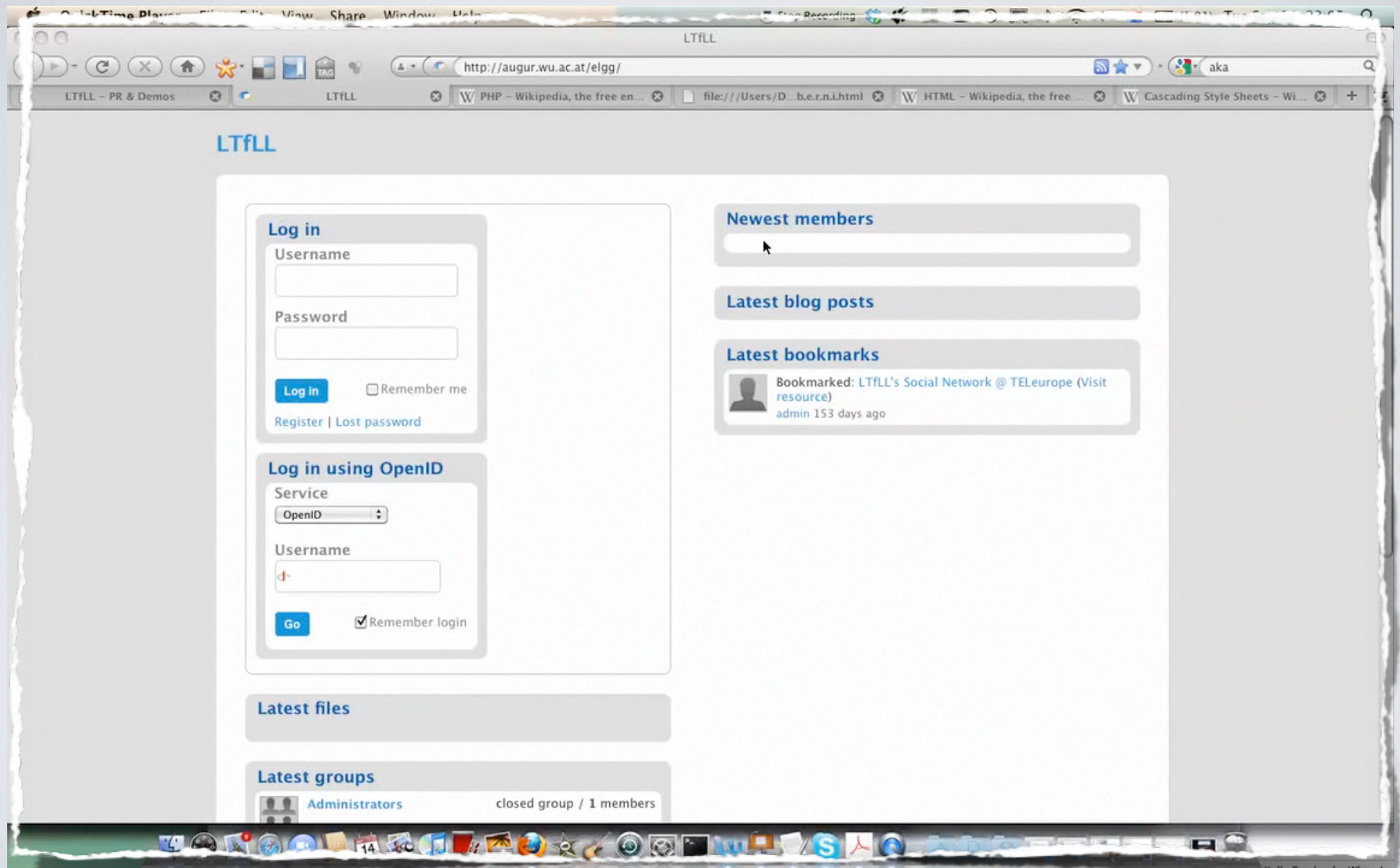
- In the working draft an API for cross-document messaging is defined.
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- EU FP6 project Palette created *myWiWal* widget portal.
- 1st IWC approach by drag-and-drop facilities to send information
- This approach lacking the possibility to tailor IWC to a user-defined audience (all widgets of one user or all users that have one particular widget)

DEMO

DEMO




SINGLE USER SETUP


Search 

[Help](#)


PHP

Graph Visualization 

[Help](#)

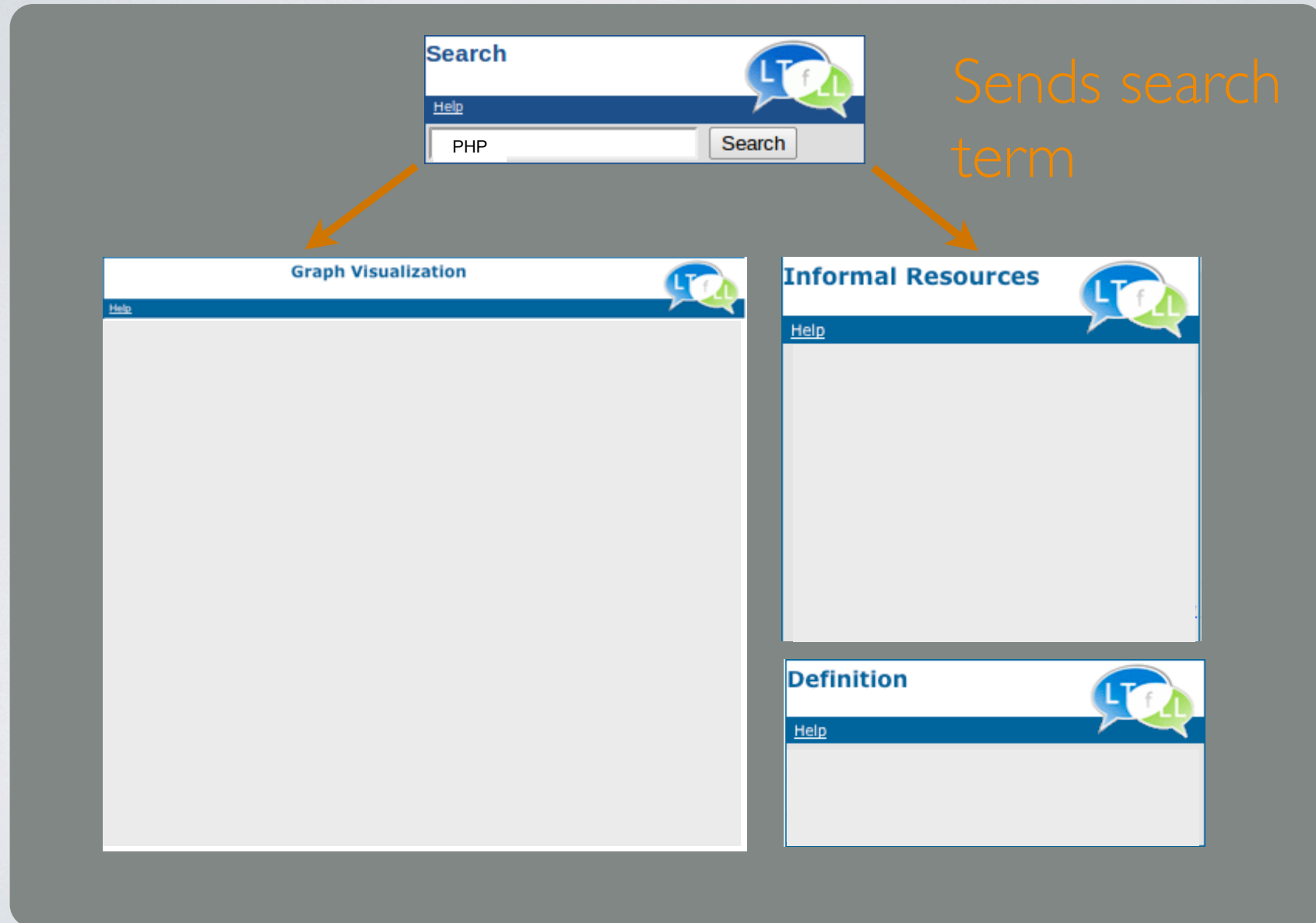
Informal Resources 

[Help](#)

Definition 

[Help](#)

SINGLE USER SETUP



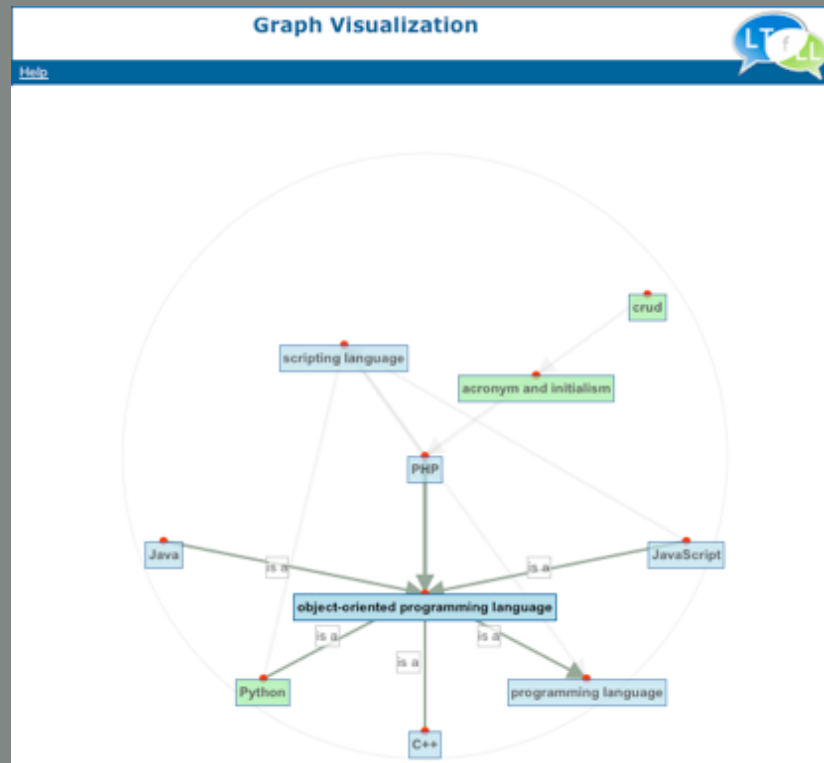
SINGLE USER SETUP

Search

[Help](#)

PHP

Sends search
term



Informal Resources

[Help](#)

- [15 Wonderfully Creative Uses for PHP](#) [Nettuts+](#)
- [Online PHP Editor](#) [PHPanywhere.net](#)
- [CodeIgniter](#) [Open source PHP web application framework](#)
- [9 Extremely Useful and Free PHP Libraries](#) [Nettuts+](#)
- [50 Extremely Useful PHP Tools | Developer's Toolbox | Smashing Maga...](#)
- [20 Useful PHP Components Tutorials for Everyday Project | Noupe](#)
- [Amazon Web Services Developer Community : Introduction to AWS for P...](#)

Definition

[Help](#)

PHP

undefined

[Read more...](#)

MULTIPLE USER SETUP

Alice

initiates shared update

```
function send(var) {  
  Widget.setSharedDataForKey  
    ("msg", var);  
}
```

Bob

both participants are
notified



```
function handleSharedUpdate(key)
```

```
function refreshPage(data)  
  update page with data
```

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IMPLEMENTATION

Search

[Help](#)




Definition

[Help](#)



IMPLEMENTATION

Search 

[Help](#)

config.js

```
1 var sharedData = Array("searchterm");
```

Definition 

[Help](#)

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IMPLEMENTATION

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Shared
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IMPLEMENTATION

Search

Help

HTML Search

Definition

Help

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Shared
Data Key

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searchwidget.js

```
1 function init() {  
2     IWCinit();  
3 }  
4  
5 function submitForm() {  
6     IWCsetVar("searchterm",  
7     document.form.searchterm.value)  
8     ;  
9 }  
10  
11 // IWC functions  
12 function searchterm(data) {  
13     document.form.searchterm.value  
14     = data;  
15 }  
16 }
```

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IWC.js

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2 IWCsharedKey = null;
3 IWCdata = new Array();
4 IWCdata[0] = new Object();
5
6 function IWCinit() {
7     Widget.preferenceForKey("sharedDataKey",
8     IWCinitSharedKey);
9     IWCinstanceID = Widget.instanceid_key;
10    Widget.onSharedUpdate = IWCHandleSharedUpdate;
11 }
12
13 function IWCinitSharedKey(key) {
14     IWCsharedKey = key;
15 }
16
17 function IWCsetVar(name, data) {
18     Widget.setSharedDataForKey(name, escape(data));
19 }
20
21 function IWCdelVar(name) {
22     // "No matching key found" == Wookie's message
23     // for key not defined
24     Widget.setSharedDataForKey(name, "No matching key
25     found");
26 }
27
28 function IWCgetVar(name) {
29     Widget.sharedDataForKey(
30     name,
31     function(data) {
32         data = unescape(data);
33         if (IWCdata[0][name] != data && data !=
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IMPLEMENTATION

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HTML Search

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CONCLUSIONS

- With our work we try to bridge the gap between highly individual personal environments and the possibilities for orchestrating services through IWC.
- We believe that IWC will contribute to more personalised learning environments, that are tailored to the functionalities users require for their personal learning goals.

FUTURE R&D

- Optimizing the IWC methods between the Wookie server and the client widgets by providing a workflow modelling library to improve service orchestration.

Current: One IWC policy for the whole server

Target: IWC policy per widget

- Integration of the IWC into all LTfLL widgets and dissemination to other widget developers and providers.

THANKS FOR YOUR INTEREST!

This slide is available here:

<http://www.slideshare.com/Drachsler>

Questions now or later:

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Skype: celstec-hendrik.drachsler

Blogging at: <http://www.drachsler.de>

Twittering at: <http://twitter.com/HDrachsler>

